



Volunteer Lake Assessment Program Individual Lake Reports

MONOMONAC, LAKE, RINDGE, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	12,448	Max. Depth (m):	7.8	Flushing Rate (yr ⁻¹)	3.6
Surface Area (Ac.):	711	Mean Depth (m):	2.8	P Retention Coef:	0.55
Shore Length (m):	17,200	Volume (m ³):	8,093,500	Elevation (ft):	1044

TROPHIC CLASSIFICATION

Year	Trophic class
1991	MESOTROPHIC
2008	MESOTROPHIC

KNOWN EXOTIC SPECIES

Variable Milfoil

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

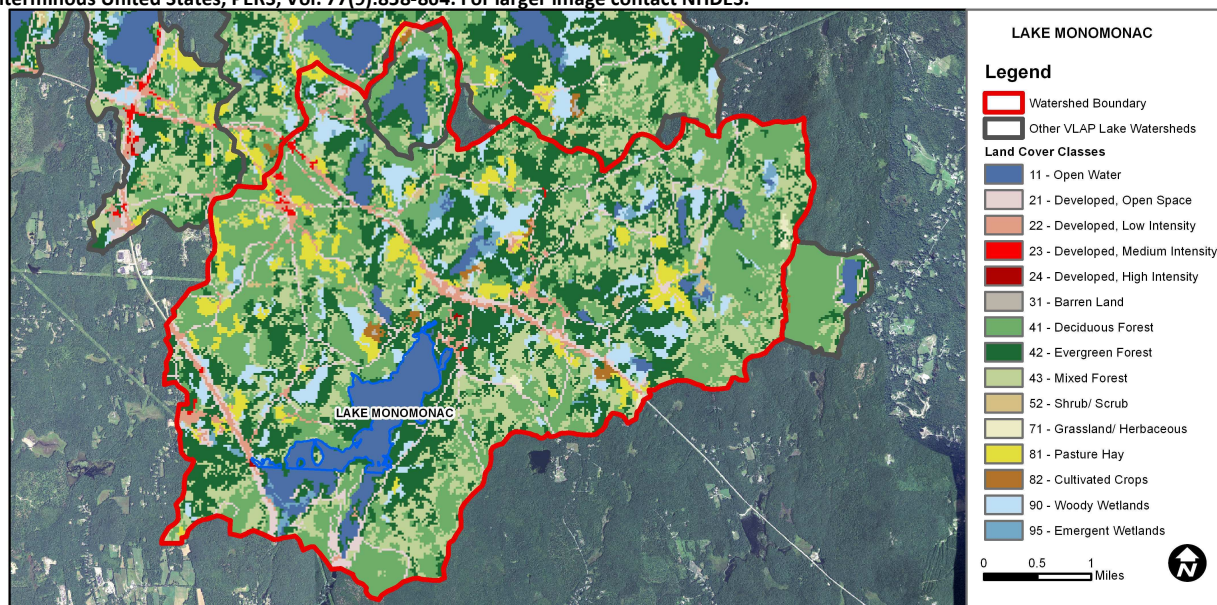
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	>/=5 samples and median is >threshold.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Cautionary	< 10 samples and 1 exceedance of criteria. More data needed.
	Chlorophyll-a	Slightly Bad	>5 samples and median is > threshold.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

MONOMONAC LAKE - CAMP MONOMONAC BEACH	E. coli	Good	Geometric means < criteria; however at least 1 exceedance of the single sample criteria occurred.
MONOMONAC LAKE - CAMP MONOMONAC BEACH	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	7.22	Barren Land	0.02	Grassland/Herbaceous	0.22
Developed-Open Space	5.18	Deciduous Forest	26.98	Pasture Hay	4.54
Developed-Low Intensity	2.46	Evergreen Forest	25.82	Cultivated Crops	0
Developed-Medium Intensity	0.21	Mixed Forest	19.28	Woody Wetlands	5.94
Developed-High Intensity	0.03	Shrub-Scrub	0.5	Emergent Wetlands	1.23



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

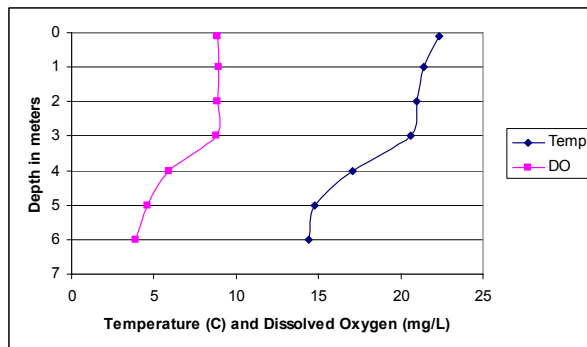
MONOMONAC LAKE, RINDGE, NH

2012 DATA SUMMARY

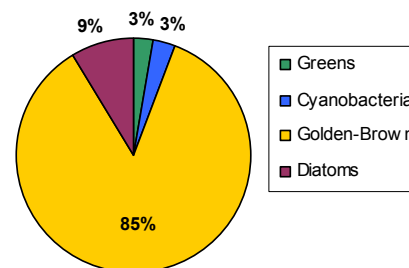
OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphic)

- CHLOROPHYLL-A:** Chlorophyll levels were elevated in June and were indicative of an algal bloom, and then decreased to more normal levels in July. The 2012 average chlorophyll level was greater than the NH lake median and was the highest measured since 2008.
- CONDUCTIVITY/CHLORIDE:** Conductivity and chloride were low in Loon Bay. All other stations experienced slightly elevated conductivity and chloride that were above the NH lake medians with Goddard Inlet experiencing the highest levels.
- E. COLI:** E. coli at Marina Inlet was well below state standards for public beaches and surface waters.
- TOTAL PHOSPHORUS:** Deep spot phosphorus levels were average and approximately equal to the NH lake median however increased from 2010. Generally, tributary and cove phosphorus levels were low, with the exception of Marina Inlet. Phosphorus levels increased in the tributaries and coves during the July sampling event.
- TRANSPARENCY:** Transparency was relatively stable in June and July, however was lower than 2010 and the NH lake median. Overall, lake transparency has been lower since 1999.
- TURBIDITY:** Epilimnetic (upper water layer) turbidity was slightly elevated in June due to the excess algal growth. Turbidities in the tributary and cove stations increased slightly in July likely due to low flow and water levels.
- pH:** pH levels were much lower in the hypolimnion and below the desirable range.
- RECOMMENDED ACTIONS:** Collect tributary samples upstream before they flow into the lake to better assess tributary water quality and pinpoint areas for watershed management activities. Transparency has decreased since 1999 and may be due to an increase in algal growth or suspended sediments in the lake. One way to manage algal growth and sedimentation is to educate watershed residents on reducing fertilizer use and decreasing stormwater runoff from their properties. DES' "NH Homeowner's Guide to Stormwater Management" is a great resource to educate watershed residents on ways to reduce stormwater runoff from their properties.

Dissolved Oxygen & Temperature Profile



Monomonic Lake Phytoplankton Population



Station Name	Table 1. 2012 Average Water Quality Data for LAKE MONOMONAC									
	Alk.	Chlor-a	Chloride	Cond.	E. Coli	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	#/100ml	ug/l	m		ntu	
							NVS	VS		
Begun Inlet			12	74.4		10			1.11	6.56
Colburn Inlet			15	77.8		10			1.11	6.42
Converse Inlet			15	77.1		10			1.25	6.35
Dapkas Inlet			13	74.8		8			0.76	6.63
Deep Epilimnion	2.00	6.57	15	77.6		12	2.16	2.58	1.78	6.37
Deep Hypolimnion				75.8		13			1.13	5.80
Goddard Inlet			24	104.6		15			1.07	6.36
Loon Bay			4	33.7		11			0.63	5.60
Marina Inlet			15	87.3	15	23			2.11	6.19
State Line Inlet			14	73.9		9			0.84	6.57
State Line Intermittent Stream			14	54.3		10			0.75	6.63
Swan Point Inlet			15	78.3		10			0.77	6.52

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

Chloride: < 230 mg/L (chronic)

E. coli: > 88 cts/100 mL – public beach

E. coli: > 406 cts/100 mL – surface waters

Turbidity: > 10 NTU above natural level

pH: 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

Alkalinity: 4.9 mg/L

Chlorophyll-a: 4.58 mg/m³

Conductivity: 40.0 uS/cm

Chloride: 4 mg/L

Total Phosphorus: 12 ug/L

Transparency: 3.2 m

pH: 6.6

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	N/A	Ten consecutive years of data necessary for trend analysis.
Transparency	N/A	Ten consecutive years of data necessary for trend analysis.
Phosphorus (epilimnion)	N/A	Ten consecutive years of data necessary for trend analysis.

This report was generated by the NH DES Volunteer Lake Assessment Program (VLAP). For more information contact:
Sara Steiner
PO Box 95
Concord, NH 03302-0095
(603) 271-2658
sara.steiner@des.nh.gov

